# NITE-TIMES NEWS

CHICAGO AREA TIMEX USERS GROUP

Chicago Area Timex Users Group — Downers Grove, Illinois
Volume 7, Number 2 — March/April 1993

*MEMORY MAP*



## C.A.T.U.G. CLUB OFFICERS

Here is the list of 1993 club officers and how to contact them. The club has two strong SIGs, SPECTRUM/TS2068 and QL. If you have questions about either of these fine machines or even the ZX81/TS1000/TS1500 call one of the officers. C=312, S=708.

| POSITION | NAME | PHONE | PRIMARY FUNCTION |
|---|---|---|---|
| President | Nazir Pashtoon | S439-1679 | The buck stops here... |
| Vice-President | Steve Cooper | S968-3553 | Meeting Planning, etc. |
| Secretary | Jim Brezina | S832-1782 | Records and Reporting |
| Treasurer | Frank Mills | S544-1918 | Dues and Purchasing |
| Editor | Bob Swoger | S576-8068 | Newsletter, BBS, etc. |

## Nite-Times Information

The Nite-Times News is the newsletter of the Chicago Area Timex Users Group. For an annual fee of $12.00 you can become a CATUG member and receive six newsletters each year. Write your check payable to:

**FRANK MILLS**
**417 S 47th AVE**
**BELLWOOD IL 60104**

The Chicago Area Timex Users Group is pleased to exchange newsletters with other Timex and Sinclair supporting user groups at no charge. Send all newsletter requests to:

**CATUG EDITOR BOB SWOGER**
**613 PARKSIDE CIRCLE**
**STREAMWOOD IL 60107-1647**

If you desire to reprint any articles that appear here, please provide credit to the author and this newsletter.

We encourage your user group to copy this newsletter and distribute it at your regular meetings to your members free of any charge as we believe that this will encourage better meeting attendance. If you are a user group that feels as we do, please let us know in your newsletter so that we might do this for our members and keep our attendance up.

Articles originating from our group may be downloaded from our BBS and reprinted.

## CONTRIBUTORS TO THIS ISSUE

**Dave Barry**
**Cedric Bastiaans**
**Jim Brezina**
**Frank Mills**
**Bob Swoger, K9WVY**

## CLUB MEETINGS

The Chicago Area Timex Users Group meets on the THIRD Saturday of each month at the home of our meeting coordinator Steve Cooper in Downers Grove, Illinois from 1:00 to 5:00 PM. Steve's home is lovingly called the CLUB HOUSE and is located at 1300 Maple Street in Downers Grove just 2 blocks southwest of the Downers Grove Public Library. Steve should always be contacted evenings at 708/968-3553 to confirm the meeting schedule.

## TREA$URY NOTE$

The balance as of Apr. 30, 1993 is $344.73 Our current paid membership stands at 19.

Frank Mills, Treasurer
Chicago Area Timex Users Group

## SECRETARY'S NOTEPAD

**March 20, 1993**

Meeting called to order at 2:23 P.M. Those present were Steve Cooper, Bob Swoger, John Donaldson, Frank Mills, Jim Brezina, Abed Kahale. Leopold Majewski, Nazir Pashtoon, and Larry Sauter. Nazir and Abed wished us happy New Year (Islam). Bob reported that Frank Davis and Paul Holmgren of Mechanical Affinity, our two former visitors from Indiana, wanted to come back up to visit us again. Bob also suggested we inquire about going to their picnic.

Pashtoon made a mention that someone at Mile High was working on a hard drive for TS2068. Bob Swoger mentioned another fellow was doing the same thing. We will take a wait and see attitude, sounds like vaporware!

Frank Davis mentioned to Bob that he has come across a word processor for 2068 or Spectrum called Spectral Writer. He says it's superior to Tasword. Bob says he will have to see what that is.

Abed mentioned that T/SNUG sent a list of all R.M.G. customers. He used it to mail a ZQA introduction letter to all known RMG customers. Bob said his name wasn't on the list, my name was missing also. Bob said he got a new R.M.G. Up-date sheets. When I got home, I found RMG Up-date sheets in my mailbox. These sheets are sent to me for sending in 12 self addressed stamped envelopes. These list some items that RMG has available. Some of the things listed are things others want to sell through RMG. Rod Gowen says he is going to discontinue the catalogue but continue the Up-date sheets. He also says that many of the things listed in the catalogue are no longer available.

Bob reported that the 2nd Last Annual CoCoFest will be held at the Holiday Inn on May 1 and 2 in Elgin.

Donaldson received a communiqué from Al Feng stating that Al hasn't unpacked his computer equipment yet.

Meeting adjourned at 3:23 PM.

**April 17, 1993**

Meeting was called to order at 2:19. Those present were Steve Cooper, Frank Mills, Abed Kahale, John Pagano, Bob Swoger, Nazir Pashtoon, Jim Brezina.

Swoger announced that he had talked to Rod Gowen and was told that RMG had two LarKen DOS systems in stock. Brezina had gotten the RMG catalogue and gets updates every month from RMG and has seen neither the LarKen system of LogiCall mentioned in them. Rod states that many items listed in that catalogue are no longer available. Rod has been sending Jim sheets listing non-computer items which Jim considered useless. Rod also states that he is about to lose that half address.

Mention was made about the Tom Woods NV RAM Cooper was using not working any more. It had been left in the DOC port when the TS2068 was turned off. The statement was made that the cartridge attempts to run the powered down TS2068 and therefore discharges the little Lithium battery.

The meeting was adjourned at 2:44.

Swoger demo'ed LogiCall running on a pure JLO TS2068 system.

James F. Brezina, Secretary
Chicago Area Timex Users Group

## FROM THE EDITORS DISK

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We hope you enjoy our little April Fools 'Electricity' article, the 'Static Electricity' article Don Lambert ran in V3.1 ZXir QLive Alive! made me think you all might like this one.

## GATOR's TWISTED PAIR

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! ! ! R E M E M B E R ! ! !
We have a 24 hour BBS and encourage you to exchange mail and contribute to the Download Section. Use it and have fun!

Call the BBS at 708-632-5558 and register. On your next call your security level will be increased to 5 on this RBBS and you will be able to have most privileges.

--==GATOR==--

**ITEMS FOR SALE THROUGH THE CLUB**

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It has come to our attention that some LarKen Users are using something less than Version 3 firmware. The club will supply updated EPROMs, SYSTEM DISKS, and MANUALS for just $5 which includes shipping and handling, free if ordered with LogiCall or Spectrum ROM.

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If you are a LarKen LKDOS owner and would like a SPECTRUM V2 kit for your system we will supply an EPROM, socket and 74HCT32 for $12 which includes shipping and handling. The install instructions are in your LarKen manual. We shall not be responsible for your install job. AERCO owners need only the SPECTRUM EPROM for $10

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If you have a mismatch between you LarKen DOS EPROM and your Western Digital Controller chip, we will send you the correct one for free on behalf of our friends Rod Gowen of RMG and Larry Kenny of LarKen. You should be using L3 EPROMs with WD1770 controller chips or L3F EPROMs with WD1772 controller chips. Check it out! Call in requests to Bob Swoger at W708-576-8068 H708-837-7957

**SPECIAL DEALS AND BUYS**

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NAP_Ware (Nazir A. Pashtoon's new endeavor) announces the availability of all Timex or QL PAL (Programmable Array Logic) chips. If interested, call him evenings on 708-439-1679.

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LogiCall Integrated Software Ensemble easy operating system for LKDOS in both TS2068 and Spectrum modes includes LogiCall 5.0 TASWORD TWO V2.8, VU-CALC V1.6, VU-FILE and MTERM2 Drivers modified for LogiCall, DISKS.B1 TAPES.B1 steprt.B1 HEADER.BT (tape header reader by Nazir Pashtoon) FORMAT.B_ MOVE.BL and more all on 2 SSDD disks for $15. You must specify your LKDOS EPROM version. If you already have a copy you are encouraged to distribute copies to other LarKen LKDOS users for as you see by the price we are not in the business of making money on it, just making LarKen's LKDOS even better! Call in requests to Rod Gowen of RMG Enterprises.

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So you like to fly? The 747 Flight Simulator for Spectrum by Derek Ashton of DACC sold over 40K copies in EUROPE. Requires Spectrum Emulator. At this time supplied on LarKen SSDD disk only for $10 which goes to Derek Ashton, now working at MOTOROLA with Bob Swoger. Call in requests to Bob at W708-576-8068 H708-837-7957

# ARTICLES

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**WHAT IS ELECTRICITY**
by Dave Barry

Today's scientific question is: What in the world is electricity? And where does it go after it leaves the toaster?

Here is a simple experiment that will teach you an important electrical lesson: On a cool, dry day scuff your feet along a carpet, then reach your hands into a friends mouth and touch one of his dental fillings. Did you notice how your friend twitched violently and cried out in pain? This teaches us that electricity can be a vary powerful force, but we must never use it to hurt others unless we need to learn an important electrical lesson.

It also teaches you how an electric circuit works. When you scuffed your feet you picked up batches of electrons,

which are very small objects that carpet manufactures weave into carpets so they will attract dirt. The electrons travel through your bloodstream and collect in your finger, where they form a spark that leaps into your friends filling, then travel down to his feet and back into the carpet, thus completing the circuit.

AMAZING ELECTRONIC FACT: If you scuff your feet long enough without touching anything, you would build up so many electrons that your finger would explode! But this is nothing to worry about unless you have carpeting.

Although we modern persons tend to take our electric lights, radios, mixers, etc. for granted, hundreds of years ago people did not have any of these things, which is just as well because there was no place to plug them in. Then along came the first Electrical Pioneer, Benjamin Franklin, who flew a kits in a lightning storm and received a serious electric shock. This proved that lightning was powered by the same force as carpeting, but it also damaged Franklin's brain so severely that he started speaking only in incomprehensible maxims, such as 'A penny saved is a penny earned.' Eventually he had to be given a job running the post office.

After Franklin came a herd of Electrical Pioneers whose names have become part of our electrical terminology: Myron Volt, Mary Louise Amp, James Watt, Bob Transformer, etc. Those pioneers conducted many important electrical experiments - among them, Galvani discovered (this is the truth) that when he attached two different kinds of metal to the leg of a frog, an electrical current developed and the frog's leg kicked, even though it was no longer attached to the frog, which was dead anyway. Galvani's discovery led to enormous advances in the field of amphibian medicine. Today, skilled veterinary surgeons can take a frog that has been seriously injured or killed, implant pieces of metal in its muscles, and watch it hop back into the pond just like a normal frog, except for the fact that it sinks like a stone.

But the greatest electrical pioneer of them all was Thomas Edison, a brilliant inventor despite the fact that he had little formal education and lived in New Jersey. Edison's first major invention in 1877 was the phonograph, which could soon be found in thousands of American homes, where it basically sat until 1923, when the record was invented.

But Edison's greatest achievement came in 1879 when he invented the electric company. Edison's design was a brilliant adaptation of the simple electric circuit. The electric company sends electricity through a wire to a customer, then immediately gets the electricity back through another wire, then (this is the brilliant part) sends it right back to the customer again. This means that the electric company can send a customer the same batch of electricity thousands of times a day and never get caught, since very few customers take the time to examine their electricity closely. In fact the last year any electricity was generated was 1937; the electric companies have merely been reselling it ever since, which is why they have so much time

to apply rate increases.

Today, thanks to men like Edison and Franklin, and frogs like Galvani's, we receive almost unlimited benefits from electricity. For example, in the past decade scientists developed the laser, an electronic appliance so powerful that it can vaporize a bulldozer 2,000 yards away, yet so precise that doctors can use it to perform delicate operations to the human eyeball, provided that they remember to change the power setting from "Vaporize bulldozer" to "Delicate."

**TIMACHINE AND FDD SYSTEM COMPATIBILITY**

by James Brezina

TIMACHINE may not work properly with the Zebra FDD system. Depending on which version of the FDD you have, either the keyboard will lock up as soon as TIMACHINE runs or everything will work correctly until you use FDD I/O commands. It should be noted that if you choose to modify TIMACHINE for the FDD as listed in this article, you will loose some friendliness and ease of use. To determine which problem you have, do the following: Load TIMACHINE from tape, answer 'N' to the backup copy prompt, the ENTER CAT *. If you are able to do this, then you have the FDD I/O problem. If you can't ENTER CAT *, you have the locked keyboard problem. To correct these problems, you should first transfer TIMACHINE to FDD: MERGE the BASIC loader; change line 9997 to SAVE * ... (all SAVEs!); SAVE TIMACHINE LINE 9997; then enter GOTO 9997. Answer 'Y' to the Backup Copy prompt. Now restart the system and MERGE TIMACHINE, then complete the correction with one of the following two procedures:

A. For a Locked Keyboard:

1. Line 40: change 26688 to 26694

2. Change all SAVEs in line 8070 to SAVE * (DELAY CODE can be deleted).

3. Change all LOADs in line 9997 to LOAD *.

4. To use TIMACHINE, LOAD it from FDD and enter or load a BASIC program. Then invoke the TIMACHINE options as follows:

*C is invoked by typing RANDOMIZE USR 37476
*t will not work
*x is invoked by typing RANDOMIZE USER 37476 ERASE is invoked by typing RANDOMIZE USR 37536
*d is invoked by typing RANDOMIZE USR 37460
*e is invoked by typing RANDOMIZE USR 37468 NEW will no longer be trapped.

B. For the FDD I/O Problem:

1. Line 9997: remove the last command, GOTO 8000

2. Add lines 9998 and 9999 as follows:

```
 9998 RESTORE 9999: FOR x=237
80 TO 23792: READ y: POKE x, y:
NEXT x: POKE 37402,228: POKE
37403,92: GOTO 8000
 9999 DATA 254,122,194,224,1
46,237,70,241,62,230,195,48,146
```

3. Enter: SAVE *"TSTIME" LINE 9997. Note: Use the name by which your version calls the first part of TIMACHINE.

4. To use: *z prior to any FDD I/O operation. RANDOMIZE USR 26688 after all FDD I/O operations. All other commands as per manual.

V. DEDICATED KEY FUNCTIONS WITH A COMMON KBD-LINE

There are 7 (seven) key functions which require one KBD-line to be connected to two different A-lines, refer to the Table of Figure 3 in Part 1 of this article series.
These functions are the

colon : requiring pin 2 to be connected to pins 13 and 11,
semicolon ; requiring 2 to be connected to pins 13 and 10,
equal sign = with pin 2 to be connected to pins 13 and 12,
closing parenthesis ),2 to be connected to pins 13 and 9,
"at" sign @ with pin 2 to be connected to pins 13 and 6,
EDIT key, requiring 1 to be connected to pins 11 and 6,
DELETE key, with pin 1 to be connected to pins 11 and 9.

The @ sign might only be useful as a dedicated key function for those of you who use the A&J microdrive. The remaining functions should be carefully chosen if you do not have a whole lot of spare keys available in your keyboard. DELETE would be a first choice, with : and ; next.

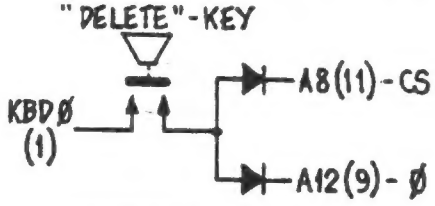

FIGURE 4

Allright, now how to effect this? Bearing in mind that current flows from KBD to A, it is quite simple, as Figure 4 shows. The diodes (silicon type, either 1N914 or 1N4148), are needed to prevent the A-lines from connecting together; we only want them to connect to the KBD-line.

I suggest that you DON'T BUY the so-called Radio Shack Archer Packs when you go shopping for diodes. These are very cheap (50 for less than $2), but may not always be of reliable quality. Catalog item 276-1122 (10 for $.99), on the other hand, is of quite acceptable quality.

VI. DEDICATED KEY FUNCTIONS WITH A COMMON A-LINE

Likewise, there are as we can again see in the Table of Figure 3, 3 (three) functions that require two different KBD-lines to be connected to one common A-line. These are the

period . which requires pins 2 and 3 to be connected to pin 13,
comma , which requires pins 2 and 4 to be connected to pin 13,
asterisk * which wants pins 2 and 5 to be connected to pin 13.

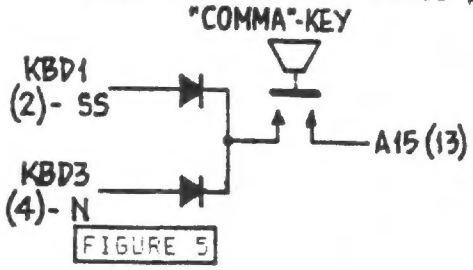

FIGURE 5

Again, we use diodes. Now to isolate the KBD-lines from each other, and Figure 5 shows the way to hook things up. The same observations as made in the preceding paragraph of course hold here too.

VII. THE REMAINING DEDICATED KEY FUNCTIONS

All of these require the switching of TWO independent line pairs. Of course, if our keyboard had DPST (double pole single throw) switches, this would be readily

possible to do. But if there are keyboards like that, I have never seen them. There is, however, an elegant electronic way of doing just what we want.
Let me introduce you to the solid state switch, the so-called bilateral switch. I have adopted the symbol shown in the next few illustrations; I think that it shows the switching concept in terms which are more readily acceptable to most engineers and technicians. The official symbol is in my opinion confusing and meaningless.

Figure 6(a) shows the basic switch, which is NOT a mechanical switch but a semiconductor device. The 10 kilohm resistor keeps the control input (c) LOW; the resistance between points (a) and (b) is then extremely high, typically more than 1000 megohm. For all practical purposes, "contacts" (a) and (b) are OPEN.

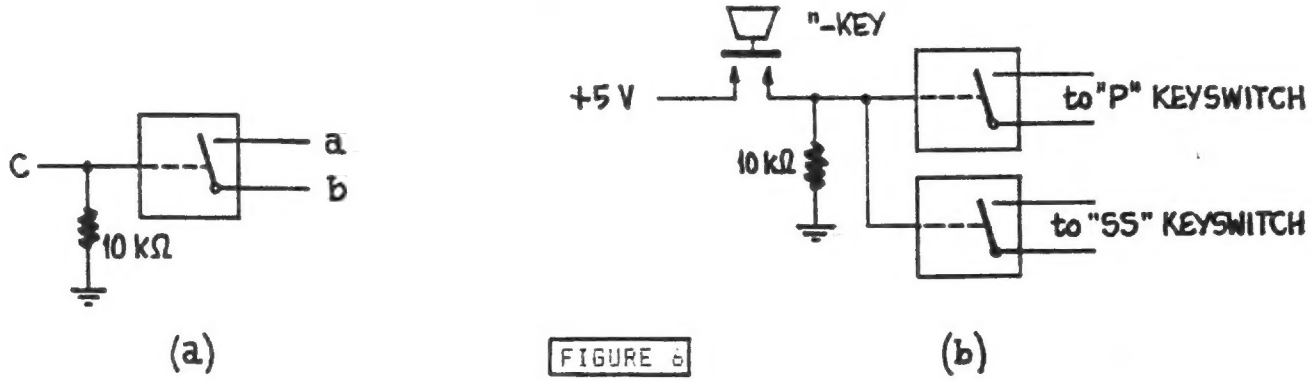


FIGURE 6

Should we, however, bring control point (c) HIGH, by for instance connecting it to +5 volts, the resistance between (a) and (b) would drop to a few hundred ohms, the exact value depending on some parameters, the supply voltage being the most influential parameter. As we have stated before, a few hundred ohm between a KBD-line and an A-line is sufficient to produce a character.
One such solid state switch would of course not do, but we can tie TWO together, as shown in Figure 6(b) and we would have a DPST switch!

The real beauty of these circuits, however, is shown in Figure 7. The dedicated functions require either a simultaneous Symbol or Caps Shift "contact closure" and we could therefore create a SS-bus and a CS-bus, each requiring only ONE solid state switch. The latter could then be activated by any one of the dedicated keys!

Figure 7 shows such a bus configuration for the CS function, with just THREE dedicated keys shown as examples. There is no limit to the number of solid state devices that you may use with one Shift Bus! Diodes are again used to isolate circuits; we do not want the activation of a bus to cause all dedicated keycircuits connected to that bus, to be activated as well.

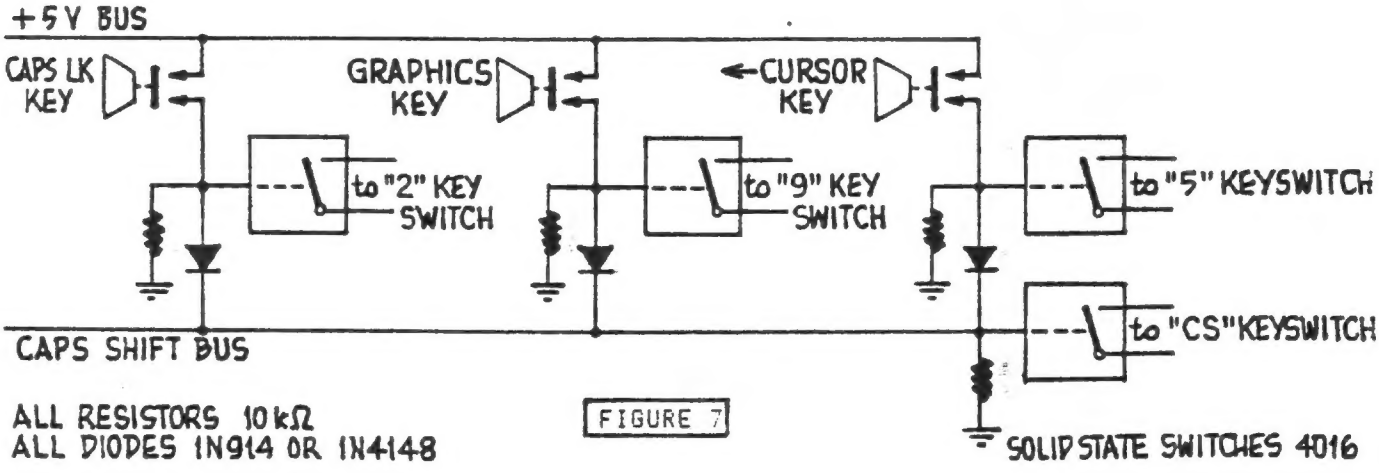


FIGURE 7

VIII. EXTENDED MODE DEDICATED KEY FUNCTIONS

Having two Shift Buses, one for CS and one for SS, allows the logical choice of another dedicated key: the EXTENDED MODE. All that is needed is the key and two diodes, as shown in Figure 8. Pressing this EM-key puts the control lines of BOTH solid state switches HIGH, thusly creating the EM-function!

I went a step further with my surplus Key Tronic Corp. keyboard with 77 keys. I dedicated eleven keys in the extra top row to often used EM functions. These keys are immediately to the right of the dedicated EM key and are wired directly in parallel with selected standard keyswitches. For instance, such a key connected to the "A"-key would, after the EM-key had been pressed (making the E-cursor appear on screen), when pressed cause the "READ"-function to show! I selected for these special keys, such functions as READ, DATA, RESTORE, STR$, CHR$, INKEY$, USR, LLIST, LPRINT, SQR and EXP. I found these to be extremely handy!

And what about the EM-functions that require an additional SS shift, after the E-cursor has appeared? Easy.
Yet another ramification of the idea: to thusly access often used commands, as for instance CAT, ATTR and others, used in disk drive operating systems. These are simply accessed with already EXISTING dedicated keys, which activate the SS function. For the two aforementioned functions, these would be the ) and the = key! The keytops for these dedicated keys would simply show TWO symbols or legends, for instance = in black (on a white key) and ATTR in black on a blue background, which is the color of the EM-key on my KB.

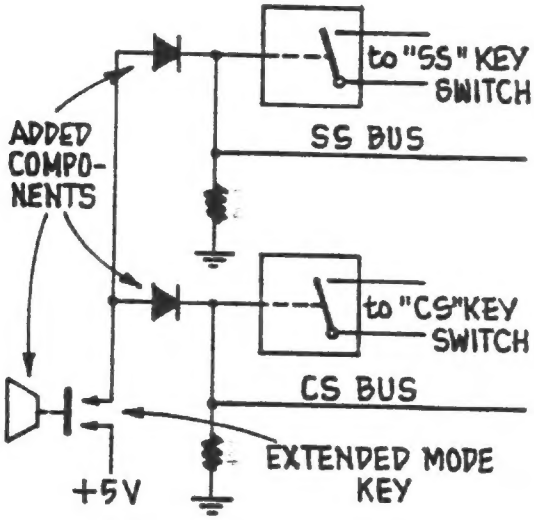


FIGURE 8

The diodes shown in the schematic are again needed for isolation; if the SS-bus is activated (pulled HIGH) by for instance pressing the dedicated ?-key, the CS-bus will not be affected, and vice versa.

The solid state switch comes packaged in a 16-pin DIP, four independent switches in a package. There are two types, the CD4016B and the CD4066B; their differences are of no concern in our application. Radio Shack sells the 4066 as their item 276-2466, current price $1.19. +5 V is plenty to supply and drive these IC's and the current drain is so small, that you don't have to worry about overloading your computer's power supply.

In our next article in this series, I will give you some points to consider on keytops, as well as some matters of concern.

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## HOW ACCURATE IS YOUR COMPUTER ????

COMPUTE!'s Gazette, a magazine for Commodore computer users, recently had an irate letter to the Editor in it, part of which reads as follows: The letter writer was ready to buy an Apple; but that computer would show the same erroneous answer. The IBM PC and the IBM AT both yield: -3.360001. Even in their "double precision mode", the answer is STILL not correct: -3.3600090000000003! AND OUR LOWLY 128? IT SHOWS THE ONLY CORRECT ANSWER: -3.36 !!!

**I was talking to another 128 owner who said that it has a problem with simple subtraction:**

**PRINT 178.56−181.92**
**−3.35999997**

---Cedric---